

## AMENDMENTS TO THE CLAIMS

### In The Claims:

Please cancel claims 1-36 without prejudice or disclaimer.

37. (New) A method for transmitting in an impulse radio, comprising:  
generating a plurality of pulses, each of said plurality of pulses being modulated in accordance with a corresponding one of a plurality of parallel data bits and a predefined pulse interleaving order; and  
transmitting said plurality of pulses.

38. (New) The method of claim 37, wherein said predefined pulse interleaving order is defined by a pulse interleaving code.

39. (New) The method of claim 38, wherein said pulse interleaving code is modified in accordance with a shift code.

40. (New) The method of claim 37, wherein each of said plurality of pulses is modulated in accordance with a predefined data bit order.

41. (New) The method of claim 40, wherein said predefined data bit order is defined by a bit ordering code.

42. (New) The method of claim 40, wherein said predefined data bit order is one of:  
a sequential order; and  
a pseudorandom order.

43. (New) The method of claim 37, wherein each of said plurality of pulses is modulated by at least one of:  
time shift modulation,

amplitude modulation,  
frequency modulation, and  
phase modulation.

44. (New) The method of claim 37, wherein said at least one of said plurality of pulses comprises a burst of cycles.

45. (New) The method of claim 37, wherein said predefined pulse interleaving order is one of:

a sequential order; and  
a pseudorandom order.

46. (New) The method of claim 37, wherein said pulses are uniformly positioned in time.

47. (New) The method of claim 37, further comprising:  
receiving each of said plurality of pulses to produce a received signal;  
coherently detecting each said received signal to produce a coherently detected signal;  
integrating each said coherently detected signal to produce an integrated detected signal;

contributing each said integrated detected signal to one of a plurality of integration ramps in accordance with said pulse interleaving order, said plurality of integration ramps corresponding to a plurality of intermediate signals; and

demodulating said plurality of intermediate signals to produce said plurality of parallel data bits.

48. (New) The method of claim 47, further comprising:  
converting said plurality of parallel data bits into a sequence of data bits in accordance with a predefined data bit order.

49. (New) The method of claim 47, wherein said pulse interleaving code is

modified based on an intermediate signal quality measurement.

50. (New) The method of claim 49, wherein said pulse interleaving code is modified based on at least one of:

- a statistical redistribution;
- a random redistribution; and
- an optimal order search algorithm.

51. (New) The method of claim 47, further comprising:  
determining an intermediate signal quality measure;  
determining a transmitting delay based on the intermediate signal quality measure;  
and coordinating said transmitting delay.

52. (New) The method of claim 47, wherein an intermediate signal of said plurality of intermediate signals is compared to another intermediate signal of said plurality of intermediate signals.

53. (New) The method of claim 52, wherein an intermediate signal of said plurality of intermediate signals is used as a reference relative to another intermediate signal of said plurality of intermediate signals.

54. (New) The method of claim 53, wherein an intermediate signal of said plurality of intermediate signals is used as an amplitude reference relative to another intermediate signal of said plurality of intermediate signals.

55. (New) The method of claim 54, wherein said amplitude reference is used to demodulate at least one of said plurality of intermediate signals.

56. (New) The method of claim 54, wherein said amplitude reference is used to synchronize a template signal with a received signal.